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ABSTRACT

This paper reports on a study that examined the chaotic events that principals face at their schools. The article uses a postmodern approach, claiming that traditional linear modes of explanation do not address the situations that principals frequently face. The study was conducted at three elementary schools. The primary source of data was semistructured interviews, during which a chaotic circumstance was given to the subjects so as to explain what a chaotic situation looks like. The principals reported that they faced chaotic situations related to family, weather, students, staff, and the beginning of the school year. Their daily activities can be explained best by chaos theory, and the characteristics of chaotic cases used in the study were similar to the definitions of chaos theory and its tenets. The episodes did not align with typical cause-and-effect outcomes, and it was obvious that principals experienced chaos in their daily activities. They met these challenges through experience, critical thinking, and problem solving. Reflective learning and mental rehearsing were the two best methods used by principals to cope with chaos. Teaching chaos theory can help school principals be aware of how an organization renews itself and what processes an organization experiences during change. (Contains 14 references.) (RJM)

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# Expect the unexpected! Elementary school principals' reactions towards chaotic events

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There is an ongoing discussion in the literature indicating that many aspects of administrative responsibilities cannot be described, explained or predicted by current management theories, leadership models, or organizational frameworks (Hunter, 1996). Therefore, it has been suggested that chaos theory be applied to education to better understand the situation (Blair, 1997; Garmston and Wellman, 1995).

According to Butz (1995), chaos is an ancient philosophical concept, that in the past 200 years has often been neglected by scientists as they seek a logical positivistic answer to a world that is largely nonlinear. Lindsay (1989) defined chaos as " the tendency of dynamical, nonlinear systems toward irregular, sometimes unpredictable, yet deterministic behavior" (p.4).

Blair (1993) claimed that chaos theory has the potential for informing administrators about utilizing holistic approaches to administration. The theory "suggests that all events deserve attention and monitoring; no growing effect should be ignored. If we do not think holistically, we may not account for relationships among elements" (Griffiths et al., 1991, p. 440; Blair, 1993, p.581).

Until recently, mostly linear system theories were taught in the field of education. It may be time to shift the paradigm from a modernist to a postmodernist view, or from traditional theories to alternative theories. Since social sciences including education borrowed theories from the natural sciences as they moved from Newtonian to Quantum Physics, it is time for social sciences to move to a quantum world and to better apply the chaos theory to education. Another discussion is using the metaphors from different fields in social sciences to explain the complex systems. Most of these discussions are in theoretical level. It was aimed to see how much these discussions would reflect practice. In order to see the reflection of chaos theory in practice, it was thought that the best way of seeing the reflections of chaos theory could be analyzing chaotic situations. So, the purpose of this study is to find out chaotic events that school principals face at their schools. Another aim of this study is to find out the responses of the elementary school principals towards chaotic events at their schools. It is also intended to discover how well chaos theory explains school principals' daily activities.

## Methodology

In the literature, it is suggested that qualitative research is more appropriate than quantitative for examining chaos, especially if the aim of the study is to understand the whole system rather than predict and control (Pace, 1992; Murphy, 1996; Lindsay, 1989). Blair (1997) claimed that "qualitative work seeks to observe and chronicle as much information as possible in relation to chaotic event" (p. 191).

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**Data Collection**

The study was conducted at three elementary schools and was involved only school principals. Two of them were from suburban school districts, and one of them was from urban school district.

Data were collected in at the end of winter and at the beginning of spring of 1998. The primary source of data was semi-structured interview, which is also called as standardized open-ended interview by Patton (1990). As the basic characteristics of the semi-structured interview questions were prepared beforehand and interviewees were asked the same questions during the interviews, and also follow up and probing questions were asked. As part of the interview, a chaotic circumstance was given to the subjects to explain what a chaotic situation looks like. Most of the interview questions and a chaotic case were taken from Blair's (1993, 1997) studies. Dr. Blair gave his permission to use these interview questions via email. The chaotic situation is defined as a situation which is very complex, unpredictable, nonlinear, and small amount of changes cause a major differences at the end.

**Data Analysis**

Interviews were audio taped and transcribed except one of them. Data were indexed, labeled, and coded according to the major topics. First, it was read many times to understand and see the pattern. In order to understand the general category, open coding was used. Then, axial coding was used in order to see the subcategories of the data. Finally, I used theoretical coding to see if my data had examples to explain the tenets of chaos theory. I searched some concepts related to chaos theory and I coded them.

Triangulation has been supported by using source and theoretical triangulation. Same interview questions were asked each school principal and their responses were compared. For the theoretical triangulation, I looked at how my data reflect chaos theory. In addition to them, the findings of this study were compared with others' studies.

**Findings and Conclusion**

Elementary school principals' daily activities are not the same every day and they are not routines. As school principals mentioned during interviews, they face a lot of problems and chaotic situations. Chaotic situations that school principals face are related to family and parents, weather-related situation, students, staff, and beginning of the school year. Starratt (1990) explained school principals' routine as "reacting to one crisis after another" (p.13). Hearne (1991) explained school principals' daily activities as dealing with surprises. In addition to them Cooper's (1989) research showed that school principals spend almost 72% of their time for problem solving. As it is seen from the literature and from this research, school principals' daily activities are not routine, they are unpredictable and complex. And their daily activities can be explained best by chaos theory which is "the tendency of dynamical, nonlinear systems toward irregular, sometimes unpredictable, yet deterministic behavior" (Lindsay, 1989:4).

The characteristics of chaotic cases, which were found in this study, seem similar to the definitions of chaos theory and its tenets in the literature. They can be interpreted as nonlinear, complex, unpredictable, and they have feedback features for schools and

school principals. Since they are nonlinear, there is no cause effect relations in the cases, so solutions of these chaotic cases cannot be analytic that our educational systems praise while school principals are trained as future educational leaders. In addition, these chaotic situations seem random, and unpredictable. As one of the school principals said "it is hard to predict when a student bring the gun to school and kill the student". In order to see how these chaotic situations occur, observations of those chaotic situations can answer these questions. Moreover, they are complex, it is not easy to take only one part and solve it. School principals should see the whole pictures, and understand the relations between the events. Furthermore, they are a kind of feedback mechanism for school. School principals claimed that after they experience chaotic situations they try to be as thoughtful as they can for the next chaotic situations. I felt that I should be cautious to interpret the cases because of time constraints. Firstly, I only conducted interviews; I didn't employ any observatinal methodology in the school settings for any chaotic situations. Secondly, I tried to look at collected chaotic situations and interpret them according to how chaos theory mentioned in the literature.

I think at this point I should discuss whether school principals are trained to overcome all these chaotic situations or not? Or can there be any training model? It is obvious that school principals experience chaos in their daily activities, and they try to overcome those chaotic situations with their experience, critical thinking, and problem solving strategies. It seems that reflective learning and mental rehearsing are the two best methods used by school principals. Teaching chaos theory can help school principals to be aware of how an organization renews itself, and what processes an organization experience for change. The important thing is that school principal as a leader should know how to make a decision during these times. This can also help school principals not experiencing too much stress and frustration. In this study, two school principals didn't know about chaos theory and one declared s/he knew a little bit, and two of them wanted to learn about chaos theory and its application to education.

In sum, first, it was found that we could see the reflection of chaos theory in school principals' daily activities, the way they deal with chaotic situations. This proves discussion that takes place in the literature. Second, school principals need to learn chaos theory and understand the dynamics of it. If they perceived schools as organic system and complex that they are flux, they would accept that having disorder and turbulence is normal. Therefore, they will be flexible while they handle these chaotic situations. This will prevent school principals suffering from stresses. The role of school principal as a leader to make creative decision to release the school from these chaotic situations to order state. I think this could only happen with chaos-conscious school principalship training.

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